



# FCC PART 15.249 TEST REPORT

For

# **Keeson Technology Corporation Limited**

No. 158, Qiumao Road, Wangjiangjing, Xiuzhou district, Jiaxing, Zhejiang, China

**FCC ID: 2AK23MC121** 

Report Type: **Product Type:** Original Report CONTROL BOX Alisa. Gao Test Engineer: Alisa Gao Report Number: RSHA181012003-00B **Report Date:** 2018-11-02 Oscar Ye Oscar. Ye Reviewed By: RF Leader **Test Laboratory:** Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu province, China Tel: +86-0512-86175000 Fax: +86-0512-88934268 www.baclcorp.com.cn

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# **TABLE OF CONTENTS**

Report No.: RSHA181012003-00B

GENERAL INFORMATION	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	
Objective	3
RELATED SUBMITTAL(S)/GRANT(S)	
TEST METHODOLOGY	
MEASUREMENT UNCERTAINTY	
TEST FACILITY	
SYSTEM TEST CONFIGURATION	5
JUSTIFICATION	
EUT Exercise Software	
SUPPORT EQUIPMENT LIST AND DETAILS	
External I/O Cable	
BLOCK DIAGRAM OF TEST SETUP	
SUMMARY OF TEST RESULTS	8
TEST EQUIPMENT LIST	9
FCC§15.203 - ANTENNA REQUIREMENT	10
APPLICABLE STANDARD	
ANTENNA CONNECTOR CONSTRUCTION	
FCC §15.207 (A) – AC LINE CONDUCTED EMISSIONS	11
APPLICABLE STANDARD	
EUT Setup	
EMI TEST RECEIVER SETUP	
Test Procedure	
CORRECTED FACTOR & MARGIN CALCULATION	
TEST RESULTS SUMMARY	
Test Data	12
FCC§15.205, §15.209&§15.249- RADIATED EMISSIONS& OUT OF BAND EMISSION	15
APPLICABLE STANDARD	15
EUT SETUP	15
TEST EQUIPMENT SETUP	16
TEST PROCEDURE	16
CORRECTED AMPLITUDE & MARGIN CALCULATION	17
Test Results Summary	
TEST DATA	17
FCC §15.215(C) – 20 DB BANDWIDTH TESTING	
APPLICABLE STANDARD	
TEST PROCEDURE	24
Tegt Data	2.4

### **GENERAL INFORMATION**

#### **Product Description for Equipment under Test (EUT)**

Applicant	Keeson Technology Corporation Limited
Tested Model	MC121
Series Model	MC121BS, MC121TS, MC121SP, MC121KL, MC121LT, MC121BK
Model Difference	Model name
Product Type	CONTROL BOX
Dimension	180mm(L)×95 mm(W)×37 mm(H)
Power Supply	DC 29V from adapter

Report No.: RSHA181012003-00B

Adapter Information: Model: 02-290018

Input: AC 100-240V, 50/60 Hz, 1.5A

Output: DC 29V, 1.8A

All measurement and test data in this report was gathered from production sample serial number: 20181012003. (Assigned by BACL, Kunshan). The EUT was received on 2018-10-12.

#### **Objective**

This type approval report is prepared on behalf of Keeson Technology Corporation Limited in accordance with Part 2-Subpart J, and Part 15-Subparts A and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.249 rules.

#### Related Submittal(s)/Grant(s)

FCC Part 15.249 DXX grant with FCC ID: PCU-RF258GA.

#### **Test Methodology**

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Lab Corp. (Kunshan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

FCC Part 15.249 Page 3 of 26

#### **Measurement Uncertainty**

	Item	Uncertainty
AC Power Lin	es Conducted Emissions	3.19 dB
RF conduct	ed test with spectrum	0.9dB
RF Output Po	ower with Power meter	0.5dB
	30MHz~1GHz	6.11dB
Radiated emission	1GHz~6GHz	4.45dB
Radiated emission	6GHz~18GHz	5.23dB
	18GHz~40GHz	5.65dB
Оссир	pied Bandwidth	0.5kHz
Temperature		1.0℃
	Humidity	6%

Report No.: RSHA181012003-00B

#### **Test Facility**

The test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China.

Bay Area Compliance Laboratories Corp. (Kunshan) Lab is accredited to ISO/IEC 17025 by A2LA (Lab code: 4323.01) and the FCC designation No. CN1185 under the FCC KDB 558074 D01. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

FCC Part 15.249 Page 4 of 26

# **SYSTEM TEST CONFIGURATION**

#### Justification

Channel list:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2403	40	2442
2	2404	•••	
•••	•••	•••	•••
38	38 2440		2479
39	2441	78	2480

Report No.: RSHA181012003-00B

EUT was tested with Channel 1, 40 and 78.

#### **EUT Exercise Software**

RF test tool: UartAssist.exe

# **Support Equipment List and Details**

Manufacturer	Description	Model	Serial Number
OKIN	Head Actuator	JLDQ-10	68000011150188170951
OKIN	Foot Actuator	JLDQ.10.326.150D	68000942150187093972
OKIN	Motor	ZYT-36S-42-5	68000044121805110942
OKIN	LED Strip(3pcs)	JLDP.15.501.401	6800110415P186120009
DELL	Notebook	GX620	D65874152
DELL	Adapter-2	LA65NS0-00	DF263
OKIN	Debug Board	/	/

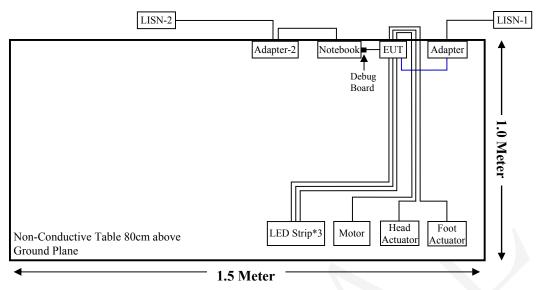
# **External I/O Cable**

Cable Description Length (m)		From Port	To
DC Cable 1.8		EUT	Adapter
AC Power Cord	1.8	Adapter	LISN-1/AC Source/Socket

FCC Part 15.249 Page 5 of 26

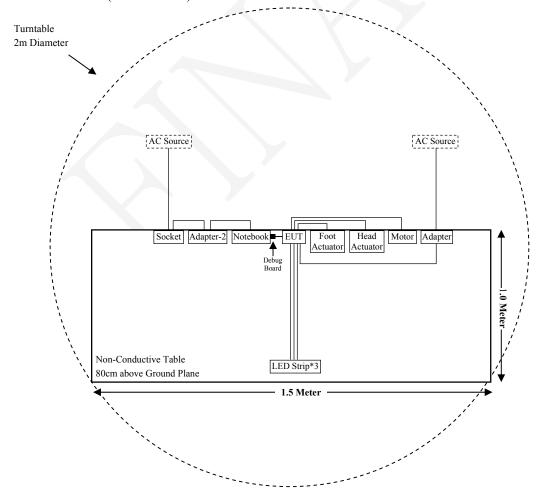
# **Block Diagram of Test Setup**

For Conducted Emissions:



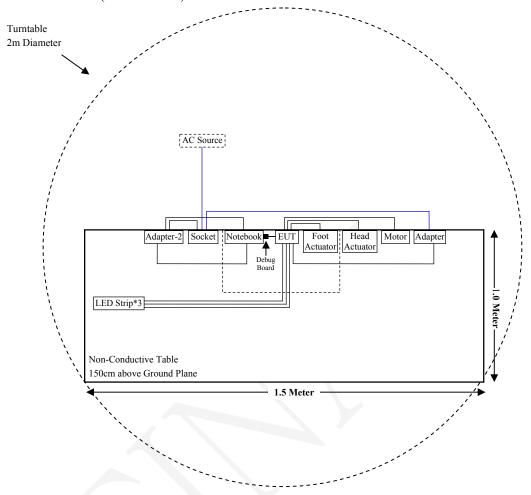
Report No.: RSHA181012003-00B

For Radiated Emissions(Below 1GHz):



FCC Part 15.249 Page 6 of 26

# For Radiated Emissions(Above 1GHz):



FCC Part 15.249 Page 7 of 26

# SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliant
§15.207(a)	Conduction Emissions	Compliant
15.205, §15.209, §15.249	Radiated Emissions& Out of Band Emission	Compliant
§15.215 (c)	20 dB Bandwidth	Compliant

Report No.: RSHA181012003-00B

FCC Part 15.249 Page 8 of 26

# TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial	Calibration	Calibration				
171ulluluccul Cl	-		Number	Date	<b>Due Date</b>				
	Radiated Emission Test (Chamber 1#)								
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2017-11-12	2018-11-11				
Sunol Sciences	Broadband Antenna	JB3	A090413-1	2016-12-26	2019-12-25				
Sonoma Instrunent	Pre-amplifier	310N	171205	2018-08-15	2019-08-14				
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/				
MICRO-COAX	Coaxial Cable	Cable-8	008	2018-08-15	2019-08-14				
MICRO-COAX	Coaxial Cable	Cable-9	009	2018-08-15	2019-08-14				
MICRO-COAX	Coaxial Cable	Cable-10	010	2018-08-15	2019-08-14				
	Radiated En	nission Test (Char	nber 2#)						
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2018-08-27	2019-08-26				
ETS-LINDGREN	Horn Antenna	3115	6229	2016-01-11	2019-01-10				
ETS-LINDGREN	Horn Antenna	3116	00084159	2016-10-18	2019-10-17				
MICRO-TRONICS	Notch Filter	BRM50702	G024	2018-08-05	2019-08-04				
A.H.Systems, inc	Amplifier	2641-1	466	2018-09-11	2019-09-10				
EM Electronics Corporation	Amplifier	EM18G40G	060726	2018-03-22	2019-03-21				
Narda	Attenuator/10dB	10dB	010	2018-08-15	2019-08-14				
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/				
MICRO-COAX	Coaxial Cable	Cable-6	006	2018-08-15	2019-08-14				
MICRO-COAX	Coaxial Cable	Cable-11	011	2018-08-15	2019-08-14				
MICRO-COAX	Coaxial Cable	Cable-12	012	2018-08-15	2019-08-14				
MICRO-COAX	Coaxial Cable	Cable-13	013	2018-08-15	2019-08-14				
	R	F Conducted Test		•					
Rohde & Schwarz	Signal Analyzer	FSIQ26	836131/009	2017-11-12	2018-11-11				
Narda	Attenuator/10dB	10dB	010	2018-08-15	2019-08-14				
Keeson	RF Cable	KeesonC01	C01	Each Time	/				
	Cond	lucted Emission Te	est						
Rohde & Schwarz	EMI Test Receiver	ESCS30	834115/007	2017-11-12	2018-11-11				
Rohde & Schwarz	LISN	ENV216	3560655016	2017-11-15	2018-11-14				
Rohde & Schwarz	LISN	ESH3-Z5	862770/011	2017-11-12	2018-11-11				
BACL	Auto test Software	BACL-EMC	CE001	/	/				
Narda	Attenuator/6dB	10690812-2	26850-6	2018-01-10	2019-01-09				
MICRO-COAX	Coaxial Cable	Cable-15	015	2018-08-15	2019-08-14				

Report No.: RSHA181012003-00B

FCC Part 15.249 Page 9 of 26

<sup>\*</sup> Statement of Traceability: Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

# FCC§15.203 - ANTENNA REQUIREMENT

#### **Applicable Standard**

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used.

Report No.: RSHA181012003-00B

#### **Antenna Connector Construction**

The EUT has a PCB antenna and antenna gain is 0dBi, which was permanently attached, fulfill the requirement of this section, please refer to the EUT photos.

**Result:** Compliant.

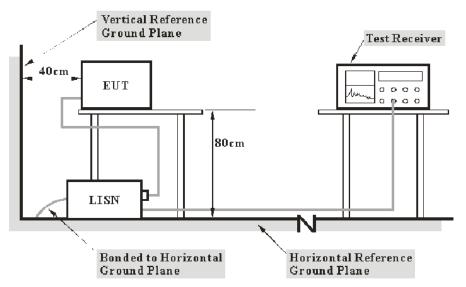
FCC Part 15.249 Page 10 of 26

# FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

#### **Applicable Standard**

FCC§15.207

#### **EUT Setup**



Report No.: RSHA181012003-00B

Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

#### **EMI Test Receiver Setup**

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

#### **Test Procedure**

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

FCC Part 15.249 Page 11 of 26

#### **Corrected Factor & Margin Calculation**

The Corrected Factor is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Corrected Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

Report No.: RSHA181012003-00B

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin (dB) = Limit (dB $\mu$ V) – Corrected Amplitude (dB $\mu$ V)

## **Test Results Summary**

According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

#### **Test Data**

#### **Environmental Conditions**

Temperature:	25.0℃
Relative Humidity:	48 %
ATM Pressure:	101.2 kPa

The testing was performed by Alisa Gao on 2018-10-31.

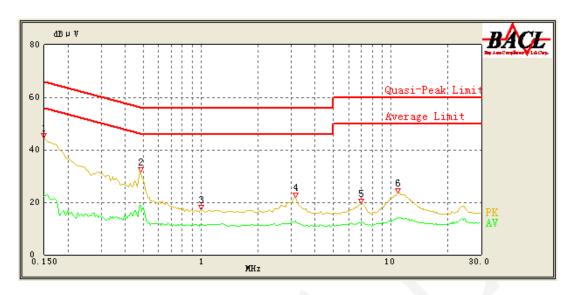
Test Result: Compliant.

EUT operation mode: Transmitting in low channel. (Worst case)

FCC Part 15.249 Page 12 of 26

# AC 120V/60 Hz, Line

Report No.: RSHA181012003-00B

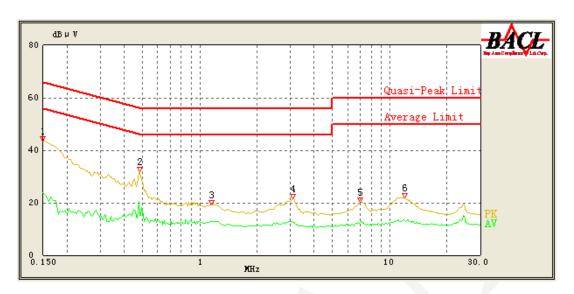


Frequency (MHz)	Corrected Amplitude (dBµV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBµV)	Margin (dB)	Comment
0.150	44.60	QP	9.000	L1	16.06	66.00	21.40	Compliant
0.150	22.09	AV	9.000	L1	16.06	56.00	33.91	Compliant
0.485	31.49	QP	9.000	L1	16.08	56.43	24.94	Compliant
0.485	18.88	AV	9.000	L1	16.08	46.43	27.55	Compliant
1.000	17.15	QP	9.000	L1	15.88	56.00	38.85	Compliant
1.000	11.63	AV	9.000	L1	15.88	46.00	34.37	Compliant
3.150	21.89	QP	9.000	L1	15.85	56.00	34.11	Compliant
3.150	12.81	AV	9.000	L1	15.85	46.00	33.19	Compliant
7.000	19.54	QP	9.000	L1	15.98	60.00	40.46	Compliant
7.000	12.57	AV	9.000	L1	15.98	50.00	37.43	Compliant
10.950	23.55	QP	9.000	L1	16.09	60.00	36.45	Compliant
10.900	14.28	AV	9.000	L1	16.09	50.00	35.72	Compliant

FCC Part 15.249 Page 13 of 26

# AC 120V/60 Hz, Neutral

Report No.: RSHA181012003-00B



Frequency (MHz)	Corrected Amplitude (dBµV)	Detector (PK/AV/QP)	Bandwidth (kHz)	Line	Corrected Factor (dB)	Limit (dBµV)	Margin (dB)	Comment
0.150	43.43	QP	9.000	N	16.06	66.00	22.57	Compliant
0.150	23.81	AV	9.000	N	16.06	56.00	32.19	Compliant
0.485	31.71	QP	9.000	N	16.11	56.43	24.72	Compliant
0.485	15.20	AV	9.000	N	16.11	46.43	31.23	Compliant
1.150	19.31	QP	9.000	N	15.94	56.00	36.69	Compliant
1.150	12.84	AV	9.000	N	15.94	46.00	33.16	Compliant
3.100	21.40	QP	9.000	N	15.90	56.00	34.60	Compliant
3.100	12.60	AV	9.000	N	15.90	46.00	33.40	Compliant
7.000	20.14	QP	9.000	N	15.92	60.00	39.86	Compliant
7.000	12.51	AV	9.000	N	15.92	50.00	37.49	Compliant
11.950	21.94	QP	9.000	N	16.00	60.00	38.06	Compliant
11.900	13.53	AV	9.000	N	16.00	50.00	36.47	Compliant

#### Note:

1) Corrected Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

2) Margin (dB) = Limit (dB $\mu$ V) – Corrected Amplitude (dB $\mu$ V)

FCC Part 15.249 Page 14 of 26

# FCC§15.205, §15.209&§15.249- RADIATED EMISSIONS& OUT OF BAND EMISSION

Report No.: RSHA181012003-00B

#### **Applicable Standard**

As per FCC§15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

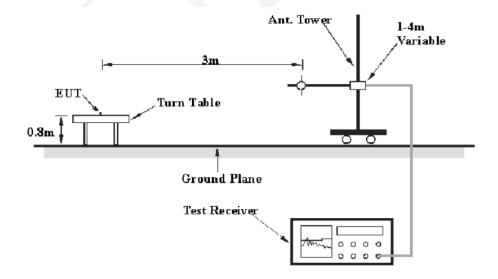
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

As per FCC§15.249 (c), Field strength limits are specified at a distance of 3 meters.

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

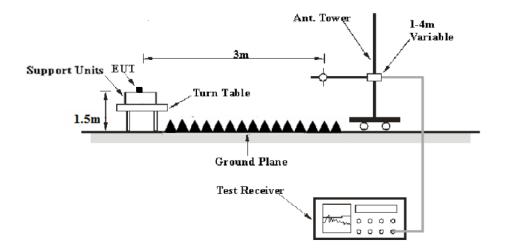
#### **EUT Setup**

Below 1 GHz:



FCC Part 15.249 Page 15 of 26

#### Above 1 GHz:



Report No.: RSHA181012003-00B

The radiated emission and out of band emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209/15.205 and FCC 15.249 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

## **Test Equipment Setup**

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver Setup was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1GHz	1MHz	3 MHz	/	PK
Above IGHZ	1MHz	3 MHz	/	Ave

#### **Test Procedure**

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

FCC Part 15.249 Page 16 of 26

# **Corrected Amplitude & Margin Calculation**

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude ( $dB\mu V/m$ ) = Meter Reading ( $dB\mu V$ ) + Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)

Report No.: RSHA181012003-00B

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin (dB) = Limit (dB $\mu$ V/m) – Corrected Amplitude (dB $\mu$ V/m)

## **Test Results Summary**

According to the data in the following table, the EUT complied with the FCC Part 15.209 &15.205 & 15.249.

#### **Test Data**

#### **Environmental Conditions**

Temperature:	24.2°C
Relative Humidity:	50%
ATM Pressure:	101.3kPa

The testing was performed by Alisa Gao on 2018-11-02.

Test Mode: Transmitting

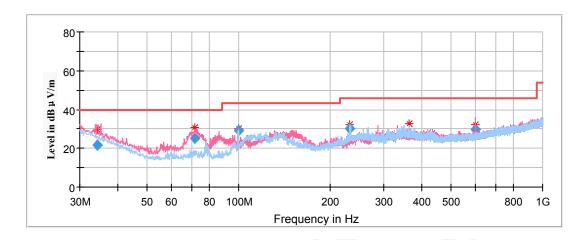
FCC Part 15.249 Page 17 of 26

# **Spurious Emission Test:**

#### 30MHz-1GHz

(Pre-scan with low, middle and high channels of operation in the X,Y and Z axes of orientation, the worst case **low** channel of operation in X-axis of orientation was recorded)

Report No.: RSHA181012003-00B



Frequency	Corrected Amplitude	Rx Antenna		Turntable	Corrected	Limit	Margin
(MHz)	Quasi-peak (dBμV/m)	Height (cm)	Polar (H/V)	Degree	Factor (dB/m)	$(dB\mu V/m)$	(dB)
34.256150	21.51	101.0	V	62.0	-6.8	40.00	18.49
71.743850	24.94	101.0	V	125.0	-17.4	40.00	15.06
99.579200	29.23	101.0	V	72.0	-15.0	43.50	14.27
232.303300	30.29	199.0	Н	19.0	-12.2	46.00	15.71
364.912600	27.59	101.0	Н	283.0	-8.9	46.00	18.41
599.997450	29.54	101.0	V	0.0	-5.2	46.00	16.46

FCC Part 15.249 Page 18 of 26

#### 1GHz-18GHz

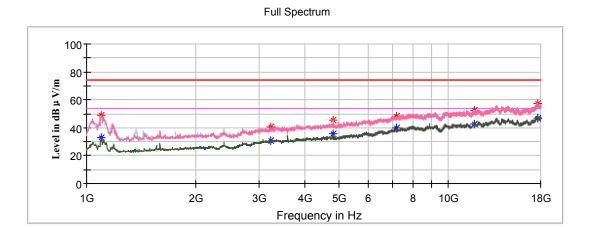
(Pre-scan in the X,Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

#### Note:

- 1. This test was performed with the 2.4-2.5GHz notch filter.
- 2. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) Amplifier Factor (dB) Corrected Amplitude (dBμV/m) = Corrected Factor (dB/m) + Reading (dBμV) Margin (dB) = Limit (dBμV/m) Corrected Amplitude (dBμV/m)

#### Low Channel: 2403MHz

Report No.: RSHA181012003-00B



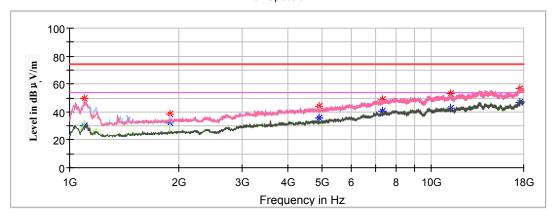
Frequency	Corrected .	Amplitude	Rx A	ntenna	Turntable	Corrected	Limit	Margin
(MHz)	MaxPeak (dBμV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)	Degree	Factor (dB/m)	(dBµV/m)	(dB)
1098.600000		32.95	100.0	V	223.0	-9.9	54.00	21.05
1098.600000	48.72		100.0	V	223.0	-9.9	74.00	25.28
3220.200000	40.71		100.0	V	135.0	-1.3	74.00	33.29
3223.600000		30.57	100.0	V	135.0	-1.3	54.00	23.43
4806.000000		35.51	250.0	Н	112.0	1.8	54.00	18.49
4806.000000	45.27		250.0	Н	112.0	1.8	74.00	28.73
7209.000000		39.92	100.0	Н	208.0	8.9	54.00	14.08
7209.000000	48.55		100.0	Н	208.0	8.9	74.00	25.45
11839.200000		42.41	200.0	Н	271.0	13.2	54.00	11.59
11839.200000	52.46		200.0	Н	271.0	13.2	74.00	21.54
17626.000000		47.01	100.0	Н	26.0	17.3	54.00	6.99
17626.000000	57.62		100.0	Н	26.0	17.3	74.00	16.38

FCC Part 15.249 Page 19 of 26

# Middle Channel: 2442MHz

Report No.: RSHA181012003-00B

#### Full Spectrum



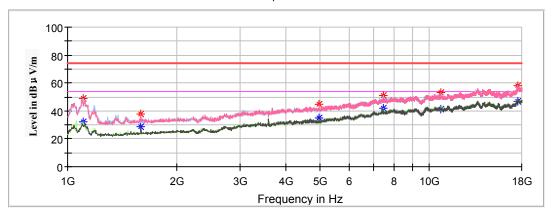
Frequency	Corrected .	Amplitude	Rx A	ntenna	Turntable	Corrected	Limit	Margin
(MHz)	MaxPeak (dBμV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)	Degree	Factor (dB/m)	(dBµV/m)	(dB)
1098.600000		29.82	250.0	V	88.0	-9.9	54.00	24.18
1098.600000	49.41		250.0	V	88.0	-9.9	74.00	24.59
1890.800000		32.28	100.0	Н	181.0	-6.2	54.00	21.72
1890.800000	38.77		100.0	Н	181.0	-6.2	74.00	35.23
4884.000000		35.44	100.0	Н	149.0	1.9	54.00	18.56
4884.000000	44.07		100.0	Н	149.0	1.9	74.00	29.93
7326.000000		40.33	200.0	Н	41.0	9.2	54.00	13.67
7326.000000	49.03		200.0	Н	41.0	9.2	74.00	24.97
11278.200000		42.56	100.0	V	230.0	13.1	54.00	11.44
11278.200000	52.81		100.0	V	230.0	13.1	74.00	21.19
17551.200000		46.89	200.0	V	126.0	17.2	54.00	7.11
17551.200000	56.96		200.0	V	126.0	17.2	74.00	17.04

FCC Part 15.249 Page 20 of 26

# High Channel: 2480MHz

Report No.: RSHA181012003-00B

#### Full Spectrum



Enggueney	Corrected .	Amplitude	Rx A	ntenna	Turntable	Corrected	Limit	Margin
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBµV/m)	Height (cm)	Polar (H/V)	Degree	Factor (dB/m)	(dBµV/m)	(dB)
1102.000000		32.08	200.0	Н	261.0	-9.9	54.00	21.92
1102.000000	48.76		200.0	Н	261.0	-9.9	74.00	25.24
1595.000000		28.45	100.0	V	149.0	-7.2	54.00	25.55
1595.000000	37.47		100.0	V	149.0	-7.2	74.00	36.53
4960.000000		34.73	200.0	Н	110.0	2.0	54.00	19.27
4960.000000	44.88		200.0	Н	110.0	2.0	74.00	29.12
7440.000000		42.12	200.0	Н	144.0	9.6	54.00	11.88
7440.000000	50.93		200.0	Н	144.0	9.6	74.00	23.07
10744.400000		41.17	100.0	V	18.0	13.1	54.00	12.83
10744.400000	53.06		100.0	V	18.0	13.1	74.00	20.94
17524.000000		47.18	200.0	Н	246.0	17.2	54.00	6.82
17524.000000	58.28		200.0	Н	246.0	17.2	74.00	15.72

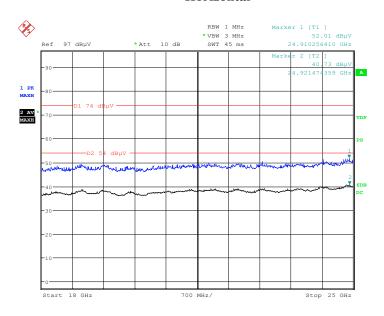
FCC Part 15.249 Page 21 of 26

#### 18GHz-25GHz

(Pre-scan with low, middle and high channels of operation in the X,Y and Z axes of orientation, the worst case **low** channel of operation in X-axis of orientation was recorded)

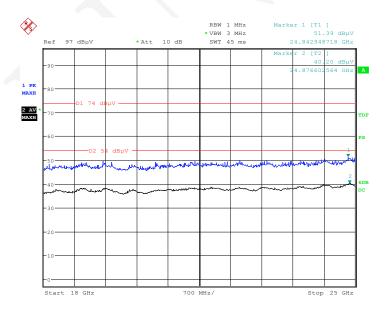
#### Horizontal

Report No.: RSHA181012003-00B



Date: 2.NOV.2018 10:23:30

#### Vertical



Date: 2.NOV.2018 10:46:16

FCC Part 15.249 Page 22 of 26

#### **Fundamental Test & Restricted Bands Emissions Test:**

(Pre-scan in the X, Y and Z axes of orientation, the worst case **X-axis of orientation** was recorded.)

Report No.: RSHA181012003-00B

#### Note:

1. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB) Corrected Amplitude (dB $\mu$ V /m) = Corrected Factor (dB/m) + Reading (dB $\mu$ V) Margin (dB) = Limit (dB $\mu$ V/m) – Corrected Amplitude (dB $\mu$ V /m)

Frequency	Corrected .	Amplitude	Rx A	Rx Antenna Turntab		Corrected	Limit	Margin
(MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Height (cm)	Polar (H/V)	Degree	Factor (dB/m)	(dBµV/m)	(dB)
			Low Chai	nnel: 2403N	ИHz			_
2403.000000	92.73		100.0	Н	29.0	6.0	114.00	21.27
2403.000000		92.16	100.0	Н	29.0	6.0	94.00	1.84
2403.000000	90.36		200.0	V	199.0	6.0	114.00	23.64
2403.000000		89.97	200.0	V	199.0	6.0	94.00	4.03
2400.000000	52.04		150.0	Н	0.0	6.0	74.00	21.96
2400.000000		41.85	150.0	Н	0.0	6.0	54.00	12.15
		N	Aiddle Ch	annel: 2442	MHz			
2442.000000	90.78		250.0	Н	312.0	6.2	114.00	23.22
2442.000000		90.42	250.0	Н	312.0	6.2	94.00	3.58
2442.000000	88.48		150.0	V	24.0	6.2	114.00	25.52
2442.000000		88.29	150.0	V	24.0	6.2	94.00	5.71
			High Cha	nnel: 2480N	MHz			
2480.000000	88.97	<i></i>	150.0	Н	164.0	6.3	114.00	25.03
2480.000000		88.71	150.0	Н	164.0	6.3	94.00	5.29
2480.000000	86.70		200.0	V	91.0	6.3	114.00	27.30
2480.000000		86.52	200.0	V	91.0	6.3	94.00	7.48
2483.500000	52.21		150.0	Н	19.0	6.3	74.00	21.79
2483.500000		46.59	150.0	Н	19.0	6.3	54.00	7.41

FCC Part 15.249 Page 23 of 26

# FCC §15.215(c) – 20 dB BANDWIDTH TESTING

#### **Applicable Standard**

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Report No.: RSHA181012003-00B

#### **Test Procedure**

- 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- 2. Position the EUT on the test table without connection to measurement instrument. Turn on the EUT. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- 3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
- 4. Repeat above procedures until all frequencies measured were complete.

#### **Test Data**

#### **Environmental Conditions**

Temperature:	24.2-24.4°C
Relative Humidity:	49-50%
ATM Pressure:	101.2-101.3kPa

The testing was performed by Alisa Gao on 2018-10-29.

Test Result: Compliant.

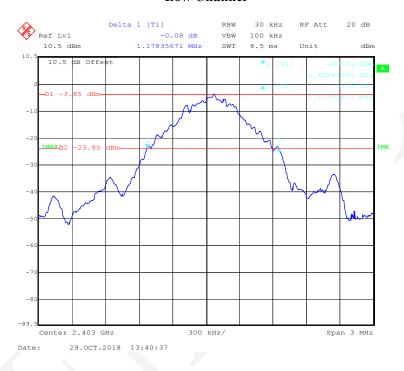
FCC Part 15.249 Page 24 of 26

Test Mode: Transmitting

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
Low	2403	1.178
Middle	2442	1.136
High	2480	1.124

Report No.: RSHA181012003-00B

#### **Low Channel**



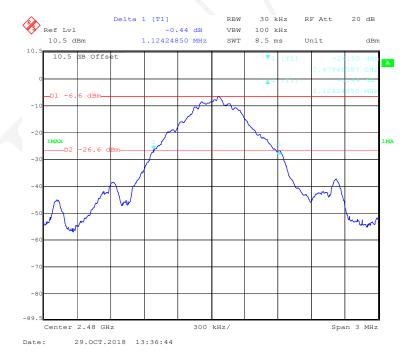
FCC Part 15.249 Page 25 of 26

#### **Middle Channel**

Report No.: RSHA181012003-00B



#### **High Channel**



#### \*\*\*\*\* END OF REPORT \*\*\*\*\*

FCC Part 15.249 Page 26 of 26